Omega® CT40

Darkroom Timer/Controller

Instruction Manual

Important Safeguards

When using your Omega photographic product, basic safety precautions should always be taken, including the following:

1. Read and understand all instructions provided with this product.
2. Close supervision is necessary when this product is used by or near children. Do not leave it unattended while it is plugged into an outlet.
3. Avoid touching the lamp area of enlargers or other hot parts as it may cause burns.
4. Do not operate this product if the power supply cord has been damaged or if the product has been dropped or damaged. Have it checked out and repaired, if necessary, by a qualified service person before using.
5. Route the power supply cord away from hot areas. Do not let the cord hang over a counter edge or across an open area where people pass.
6. If an extension cord is necessary, use one with a suitable rating. Cords rated for less amperage than the product may overheat. Route the extension cord away from open areas where it may be tripped over or pulled.
7. Always unplug the product after use. Grasp the plug and firmly pull from the outlet to disconnect. Never yank the cord from the outlet.
8. Allow the product to cool to room temperature before storing. Wrap the power cord loosely around the product.
9. Do not immerse this product in water or other liquids.
10. To reduce the risk of electric shocks, do not attempt to disassemble or repair this product. Always have it serviced by qualified service personnel when necessary. Incorrect reassembly can cause electric shock hazards.

These safeguards are prescribed by Underwriters Laboratories to be included in this instruction manual for U.L. listed products.

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Introduction

The CT40 Darkroom Timer/Controller is a microprocessor based instrument which will perform almost all of the normal darkroom timing, measurement, and calculation functions. The CT40 is simple to use and within a few minutes after reading Chapter 1, you will be able to use the basic functions of the CT40 for both printing and processing . . . automatically and accurately.

The CT40 is five instruments in one.

1) A completely automatic enlarging timer.
2) A user-programmable automatically sequencing processing timer.
3) An automatically programmed processing timer.
4) A versatile measuring instrument for temperature, exposure determination, and pH content.
5) A clock.

All of these five functions can be easily and independently used. The Quick Use Guides outline the basic timer functions in a brief manner with simple-to-follow instructions so the CT40 can be used immediately.

Quick Use Guide — Enlarging Timer

TO	PRESS	RESULT
1) Ready the CT40 for use	TIMER	Display shows all timer related functions and time.
2) Clear display (fill display with 0's until one 0 appears)	0 0 0 0	This clears the display.
3) Focus	FOCUS	Turns the enlarger on and safelight off.
4) Turn enlarger off	FOCUS or RESET	Turns the safelight on and enlarger off.
5) Set exposure time of 10 sec.*	1 0 0	Time comes from exposure meter or trial and error test print.
6) Start exposure	START/HOLD	Turns safelight off and enlarger on for 10 seconds.
7) Interrupt exposure	START/HOLD	To prepare for burning or dodging if required.
8) Cancel exposure and reset to original time.	RESET	To start over.

*timing range of minutes:seconds.tenths of seconds

Quick Use Guide — Processing Timer (User Programmable)

TO	PRESS	RESULT
1) Ready the CT40 for use	TIMER	Display will show all timer related functions and time.
2) Clear display	0 0 0 0	This clears the display.
3) Set developer time of 6½ min.*	6 3 0 0 PROGRAM 0 1	Time comes from chemical's instructions and is stored in step 1.
4) Set stop bath time of 30 sec.*	3 0 0 PROGRAM 0 2	Time comes from chemical's instructions and is stored in step 2.
5) Set fixer time of 5 min.*	5 0 0 0 PROGRAM 0 3	Time comes from chemical's instructions and is stored in step 3.
6) Set rinse time of 8 min.*	8 0 0 0 PROGRAM 0 4	Time comes from chemical's instructions and is stored in step 4.
7) Set to beginning of process program	RECALL 0 1	Step 1 of the process is recalled and ready for use.

8) Start developer time	PROGRAM START/HOLD	Starts timing of step 1.
9) Start stop bath time	START/HOLD	Starts timing of step 2.
10) Start fixer time	START/HOLD	Starts timing of step 3.
11) Start rinse time	START/HOLD	Starts timing of step 4.
12) Repeat program with automatic advance	RECALL 0 1 AUTO ADVANCE PROGRAM START/HOLD	Program repeated with 10 second pauses between steps and will automatically start the next step.

*timing range of minutes:seconds.tenths of seconds

Quick Use Guide — Processing Timer (Pre-programmed Memory Cartridge)

TO	PRESS	RESULT
1) Ready the CT40 for use	TIMER	Display will show all timer related functions and time.
2) Clear display	0 0 0 0	This clears the display.
3) Connect Expansion Interface to CT40 and Pre-programmed Memory Cartridge to Expansion Interface		
4) Enter Memory Cartridge process program	START*	Automatically transfers and stores process program from cartridge to CT40 memory.
5) Start step 1 of process	PROGRAM START/HOLD	Starts timing step 1.
6) Start step 2 of process	START/HOLD	Starts timing step 2.
7) Continue until all process steps are completed	START/HOLD	Times all subsequent steps.
8) Repeat program with automatic advance	RECALL 0 1 AUTO ADVANCE PROGRAM START/HOLD	Program is repeated with 10 second pauses between steps and will automatically start the next step.

*Located on Expansion Interface

CHAPTER 1

The Keyboard and Display

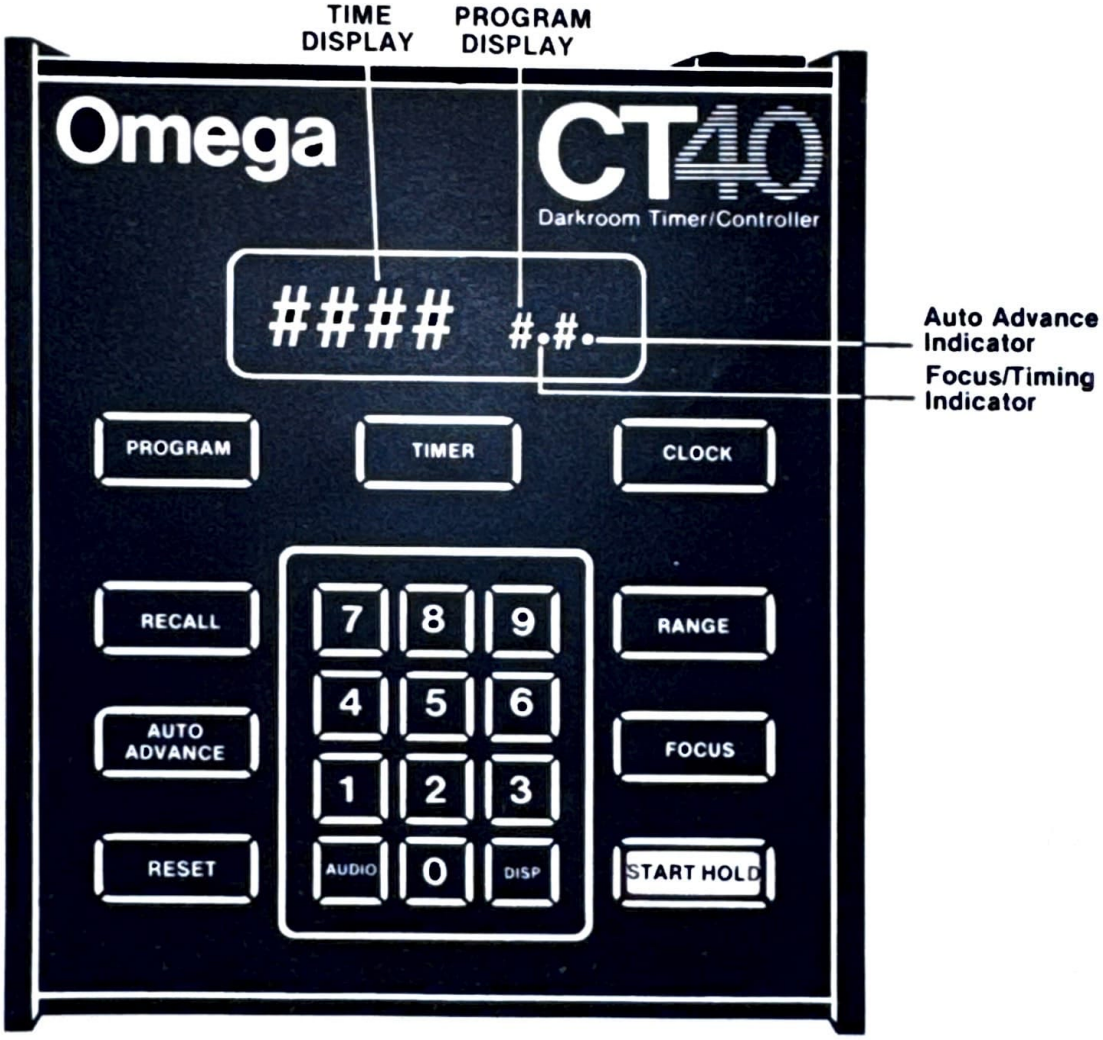

Figure 1
Front Panel of the CT40

DISPLAY

The time display can show up to four digits. The numbers entered appear in the right hand digit and move left one digit as a new number is entered. The fifth number entered sequentially will automatically clear the display and will be displayed in the right hand digit. For example:

1) Press [1], display reads [1]
2) Press [2], display reads [12]
3) Press [3], display reads [123]
4) Press [4], display reads [1234]
5) Press [5], display reads [5]

Therefore, to clear an error, just enter numbers until the display is full and the fifth number entered should be the first number of the correct entry. This action will clear the error from the display.

The display, when in the program mode, will show the programmed step numbers in the two digits to the right of the time display.

Numeral Keys 0 through 9

The numeral keys [0] through [9] are used 1) for entering printing and processing times into the timer; 2) in conjunction with the [PROGRAM] and [RECALL] keys for coding of memory locations; and 3) in conjunction with the [AUDIO] key for specific audio modes.

RANGE Key

The CT40 has two timing ranges: 1) minutes:seconds.tenths of seconds (i.e. [1:23.4]), and 2) minutes.seconds (i.e. [12.34]). The [RANGE] key when pressed will switch alternately from one timing range to the other. In the "minutes.second" range a decimal (.) is used to differentiate between minutes and seconds instead of a colon (:). **Note:** switching from one range to another will change the time drastically (i.e. a time of [5:15.0] — 5 minutes and 15 seconds — will become [51:50] — 51 minutes and 50 seconds). Please use the [RANGE] key with care.

AUDIO Key

The AUDIO key, when used in conjunction with the numeral keys [0] through [7], selects various audio modes. See Figure 2. The CT40 is automatically set to audio mode 1 when turned on. To select another audio mode, press [AUDIO] and then a numeral key from [0] through [7].

Audio Modes	Key Tones	End of Time Warning	1 Second Metronome	30 Second Metronome	15 Second Warning
AUDIO 1	Yes	No	No	No	No
AUDIO 2	Yes	Yes	No	No	No
AUDIO 3	Yes	Yes	Yes	No	No
AUDIO 4	Yes	Yes	No	No	Yes
AUDIO 5	Yes	Yes	No	Yes	No
AUDIO 6	Yes	Yes	No	Yes	No
AUDIO 7	No	No	No	No	No
AUDIO 0	displays the current audio mode				

Figure 2
Description of Audio Modes

AUDIO Modes

"Key tones" are short (1/10th of a second) beeps you will hear whenever you press a key. This insures you have entered information into the timer. This tone will be heard even if the key pressed is not entered because the timer is performing one of its functions such as pressing [FOCUS] when the CT40 is timing.

"End of time warning" is a long (1 second) tone that signals the completion of a timing cycle. "One second metronome" tones are medium-length (3/10 second) tones which signal every second during active timing. These tones are most useful in dodging and burning to keep track of elapsed time. The "30 second metronome" signals every thirty seconds as a reminder to agitate a tank or tray. **Note:** both the one second and 30 second metronome signals are synchronized with the starting time or, if the [HOLD] function is used, they are synchronized with the restarting time. The "15 second warning" are continuous short beeps that start 15 seconds prior to the end of a timing cycle. This warning that the timing cycle is about to end is useful to indicate the time for emptying the processing tank (when immediate attention is required).

DISP (Display) Key

The [DISP] key will turn the CT40's LED display on or off when it is pressed. This key is useful when highly red sensitive color materials are used within four feet of the CT40's display. Turning off the display has no effect on the CT40's other functions.

PROGRAM Key

The [PROGRAM] key is used in conjunction with the numeral keys and the [START/HOLD] key to enter user defined programs up to 16 steps long. When entering a program, the user must enter the time to be programmed by pressing the numeral keys corresponding to that desired time, then press the [PROGRAM] key followed by a two digit step number (typically the step numbers will be sequential). This key sequence stores the program into the CT40 memory. Once a program has been stored and set to the beginning, pressing [PROGRAM] and then [START/HOLD] will start the program in sequence in which it was entered. The [PROGRAM] key is also used in conjunction with the [CLOCK] key to set the clock's time.

RESET Key

The [RESET] key, when pressed, will turn off the enlarger, turn on the safelight, and will reset the timer to the starting time of the interrupted step. **Note:** in the program mode, the single step time will be displayed, but pressing [PROGRAM] [START/HOLD] will start the timer at the interrupted step.

START/HOLD Key

The [START/HOLD] key is an alternate action key. When the CT40 is *not* running and the [START/HOLD] key is pressed, it will start counting down from the value in the display. When the CT40 *is* running, it will stop timing, turn off the enlarger, turn on the safelight, and freeze the displayed value. Any fractional parts of a second that have elapsed but were not displayed (such as 1/100th of a second) will be preserved internally by the CT40. Therefore, a timing cycle can be alternately started and stopped as many times as the user wishes without any cumulative error. The [START/HOLD] key is also used in conjunction with the [PROGRAM] key to begin a stored program.

FOCUS Key

The [FOCUS] key will turn the enlarger on and the safelight off so focusing and composing can be performed. Whenever the CT40 is in the focus mode, an indicator lamp (Figure 1) on the display will be illuminated indicating this mode. No other CT40 functions will operate when it is in the focus mode.

RECALL Key

The [RECALL] key is used in conjunction with the numeral keys to recall and display the time stored in a specific program step. This will also advance the program sequence to this specific step. For example, pressing [RECALL] [0] [5] will recall step 5 from memory and display the step's time. If you now press [PROGRAM] [START/HOLD], the CT40 will start timing step 5 and subsequent program steps. **Note:** at all times when entering step numbers into the CT40, two digits must be entered (i.e. for step 5 enter [0] [5]).

AUTO ADVANCE Key

The [AUTO ADVANCE] key will automatically start the CT40 ten seconds after the end of a timing cycle. This feature can be used in either the program or single step mode. When used in the program mode, the CT40 will automatically advance through all programmed steps with a ten second pause between steps. Pressing [START/HOLD] will begin the next programmed step immediately. This feature is very useful for total "hands free" operation. When used in the single step mode, the single timing cycle will be repeated ten seconds after its completion. This feature is useful for creating test strips or for multiple prints from the same negative. An indicator is provided on the display to indicate that auto advance mode has been selected (Figure 1).

CLOCK Key

The [CLOCK] key, when pressed, displays the time-of-day and will not interfere with the CT40's operation. Therefore, you can press [CLOCK] while timing a print and even leave the clock

displayed without affecting the timing cycle, its accuracy, its audio signals, or the automatic control of the enlarger or safelight outlets.

TIMER Key

The [TIMER] key, when pressed, will display the time interval previously entered, the program step number if the timer is in the program mode, and the function indicators.

CHAPTER 2

Enlarging Timer (Single-Step Mode)

Plug the CT40 into any AC power outlet. Plug the enlarger and safelight into the timer's ENLARGER and SAFELIGHT outlets, respectively, on the rear of the CT40. Please observe the maximum power ratings for these outlets which is printed underneath the respective outlets.

Whenever the CT40 is connected to AC power, either the enlarger or safelight will be on, but never both. If the enlarger is off, press [FOCUS] to turn it on and to turn the safelight off. Compose and focus your image. Press [FOCUS] to turn the enlarger off, the safelight on, and the display will read [#:##.0 ##] (# indicates a blank digit). Set the CT40 for a 12.5 second exposure time. Press [1][2][5]. The CT40 will display [#:12.5 ##] indicating 0 minutes and 12.5 seconds.

Press [START/HOLD]. The enlarger will go on, the safelight will go off, and the timer will count down from the set time of 12.5 seconds toward zero. When the timer completes the timing cycle it will display [#:##.0 ##], turn the enlarger off, the safelight on and then automatically reset to [#:12.5 ##]. To run another enlarging time of 12.5 seconds, press [START/HOLD] again.

To change time, simply clear the display of the old time and enter the new time.

Since the CT40 has a fixed decimal point, there is never a need to worry about the decimal point placement. However, this requires entering a trailing zero if tenths of a second are zero. For example, setting the CT40 for 10.0 seconds, requires pressing [1][0][0]. For 1 minute exactly, press [1][0][0][0] for 1:00.0. As a convenience, the CT40 has no rules about times above 59.9 seconds. Therefore, you can enter 1½ minutes as 1:30.0 or 90.0.

Note: using the [RANGE] key does not change the numerals in the display but only changes the range. For example, [2:15.5] will be read [21.55] when the range is changed by pressing the [RANGE] key. This can drastically change your time so care should be used with this key.

The CT40 is designed to be as simple to operate as possible and yet offer the user maximum versatility and functionality. Many key functions are inoperative while the CT40 is in other specific modes. For example, the [FOCUS] key is inoperative whenever the CT40 is timing. Conversely, the [START/HOLD] key is inoperative whenever the CT40 is in the focus mode. When the CT40 is timing, the CT40 will prevent changing ranges, focusing, using the [PROGRAM] or [RECALL] keys, or setting audio modes. Control of the [DISP] (display), [CLOCK], [TIMER], [RESET], [AUTO ADVANCE] and [START/HOLD] keys is possible during timing. Even though some functions are inoperative during other function modes, the CT40 will still signal "Key Tones" (except for audio mode 7). This insures the key has been pressed, but will not perform the function.

You are now ready to use the CT40 for printing or other simple timing functions. As you read through other chapters, you will learn to use the more advanced features of the CT40.

CHAPTER 3

Processing Timer (Multi-Step Mode)

The CT40 can be used to create a sequence of individual timing cycles of up to 16 steps. This multi-step mode is normally used for film or paper processing but is certainly not limited to this. In fact, this mode can be used to create test strips in enlarger timing or any other multi-step processes.

The CT40 contains 16 memory locations. These locations are called 01 through 16 and are programmed using the [PROGRAM] key in conjunction with the numeral keys. As an example, a simple program to process a roll of black and white film might be as described in Figure 3. The actual processing steps and their respective times are shown along with the keys needed to be pressed on the CT40 and their precise sequence.

STEP	TIME	PRESS
Developer	6½ min.	[6] [3] [0] [0] [PROGRAM] [0] [1]
Stop bath	30 seconds	[3] [0] [0] [PROGRAM] [0] [2]
Fixer	5 min.	[5] [0] [0] [0] [PROGRAM] [0] [3]
Rinse	8 min.	[8] [0] [0] [0] [PROGRAM] [0] [4]

Figure 3

To use the program just created press [RECALL] [0] [1], which will reset the program to its first step. Step 1 will be shown on the display as [6:30.0 01]. If, however, another step is desired other than step 1, press [RECALL] [0] [3] to use just the fixer and rinse steps. Now start the program by pressing [PROGRAM] [START/HOLD]. The 6½ minute developer time will run until completion. After 6½ minutes have elapsed, the timer will turn the enlarger off, the safelight on, and automatically advance to the next step. To continue at step 2, simply press [START/HOLD]. Continue this procedure using the [START/HOLD] key until you have finished the last step. The CT40 will automatically advance from step 4 to step 5. However, step 5 is empty (the display will show [#:##.0 ##]) signaling the CT40 to automatically reset to step 1 when the [START/HOLD] key is pressed.

To recall a step from memory and use it without the remaining program, you can press the following key sequence: [RECALL] step number [START/HOLD]. Pressing [START/HOLD] instead of [PROGRAM] [START/HOLD], will cause the CT 40 to handle the step as a single step mode time and not start the multi-step sequence.

CHAPTER 4

Time Clock

The CT40 contains a six digit clock. It can be set once and will maintain correct time as long as the CT40 is connected to AC power. Using the clock will not restrict or interfere with other uses of the CT40 in any way.

When the CT40 is first connected to an AC power outlet, the clock is automatically set as [12.00 00] on the display for Hours. Minutes Seconds. To set the clock for a desired time, press the numeral keys for the desired time and then press [PROGRAM] [CLOCK]. **Note:** time can only be entered in hours and minutes, so enter the next full minute. Press [CLOCK] at the precise full minute and the clock will begin keeping correct time from that point. To return to the timer mode, press [TIMER].

CHAPTER 5

Expansion Interface
(Optional Accessory)

The Expansion Interface accessory increases the versatility of the CT40 by expanding memory and allows for utilization of a variety of darkroom accessories. The Expansion Interface has

four basic functions:

1) A tester for the CT40;
2) Automatically enters and stores into the CT40 a program for the Kodak Ektaflex negative process;
3) Automatically enters and stores into the CT40 various photographic developing processes from Pre-programmed Memory Cartridges;
4) Connects directly to the CT40 a variety of darkroom accessories.

When connecting the Expansion Interface to the CT40, it does not matter what you may have performed in the CT40 or what function mode the CT40 has been left in from its previous use.

Carefully insert the connector tab of the Expansion Interface into the socket labeled EXPANSION INTERFACE on the rear of the CT40. **Note:** the Expansion Interface's keyboard must be facing up for proper operation. Be sure to push the Expansion Interface forward until it is flush with the CT40 rear panel.

Press the [START] key on the Expansion Interface and the CT40 will begin its test procedure. The testing activates each keyboard function, all of the timing and control functions, all of the display digits, the audio tones, and the ENLARGER and SAFELIGHT outlets.

Following is what will be displayed as the CT40 proceeds through this test:

[8888 ##]

[1234 ## I]

[5678 ## I]

[9000 ## I]

[#:##.0 01,] [#:##.0 .02,] [#:##.0 03] through [#:##.0 16].

[#:10.0 ##] Displays dual timing range and shows the last time entered into the timer.

[#1.00 ## I]

[#:10.0 #.#.] Focus/Timing and Auto Advance Indicators (respectively located) are on.

[#:10.0 ##] Enlarger outlet on and safelight outlet off, then enlarger outlet off and safelight outlet on.

[#:10.0 #.#] Times down with one second metronome and end of time warning.

[#:10.0 ##]

Press the START key on the Expansion Interface again. This time the Expansion Interface will automatically program the CT40 for Kodak's Ektaflex negative process. The display will blank and the following program times will be stored into the CT40:

STEP 1: Soak of 20 seconds
STEP 2: Lamination of 9 minutes
Audio mode 5 will be stored (see Figure 2)

If the START key is pressed again, the Expansion Interface will run through the test program again. Each time the START key is pressed, when no other accessories are connected to the Expansion Interface, either the test program or the Ektaflex process will be entered alternately.

To use the Ektaflex process, press PROGRAM START/HOLD on the CT40 keyboard. After the 20.0 second soak time (step 1) the CT40 will advance to the lamination step (step 2). To start this step, if you have not selected AUTO ADVANCE, press START/HOLD.

CHAPTER 6

Pre-programmed Memory Cartridges
(Optional Accessories)

The Pre-programmed Memory Cartridges are a group of accessories that when connected to the CT40 can automatically store in its memory various photographic developing processes and allow for their quick and easy use. Each Memory Cartridge is programmed with a specific developing process, such as: Ektachrome E-6 or Cibachrome. By not having to program a time or reset a single-step timer for the most popular developing processes, you can save your valuable printing time and eliminate costly errors, thus increasing your productivity substantially. These Memory Cartridges even contain the various developing times for different temperatures and allow you to choose the appropriate program for the temperature at which you choose to work (i.e. Cibachrome). Each Pre-programmed Memory Cartridge comes with an instruction sheet detailing process steps and times of the particular development process.

If you have a Pre-programmed Memory Cartridge, insert its connector tab into the Expansion Interface's rear accessory socket. **Note:** please ensure the label side of the Pre-programmed Memory Cartridge is facing up. If you accidentally connect it backwards, no damage will occur to the CT40 or its accessories, but it will not operate.

Press the [START] key on the Expansion Interface. This will automatically enter the process program, which will appear on the display as it is being stored into the CT40's memory. Once the program is entered, the first step will appear on the display and be ready for operation. To start the program, press [PROGRAM] [START/HOLD] . At the conclusion of each step, press [START/HOLD] to begin the next step. If the timer is in the [AUTO ADVANCE] mode, then the CT40 will automatically begin the next step 10 seconds after completing the prior step.

If the program in the Pre-programmed Memory Cartridge is not exactly as you want it, you can modify the program in the CT40 memory. This does not damage or alter the Pre-programmed Memory Cartridge in any way. Press [START] on the Expansion Interface and load the program into the CT40. Press the numeral keys for the desired new time, then press [PROGRAM] and the numeral keys of the step you want to modify. Press [RECALL] [0] [1] to set the beginning of the process and then press [PROGRAM] [START/HOLD] to begin the process program which will contain the modified step's new time.

Note: all process programs entered from Pre-programmed Memory Cartridges are set for audio mode 6 and the minute:seconds.tenths of seconds (#:##.#) timing range. Pressing [RANGE] to change to the minute.second (##.##) timing range after entering a program from a memory cartridge can change the process time drastically.

CHAPTER 7

Measurement Accessories
(Optional Accessories)

The CT40 with the Expansion Interface can be used with a wide variety of measurement accessories, which further increases the versatility and usefulness of this CT40 Darkroom Timer/Controller.

Thermometer

The thermometer consists of a cartridge and a probe. Connect the cartridge to the Expansion Interface as described earlier for the Pre-programmed Memory Cartridge. Press the [START] key on the Expansion Interface once and the thermometer is ready for use. Insert the thermometer probe into the liquid to be measured. Please consult the instruction sheet supplied with the thermometer for proper use of the probe. To measure temperature, press either the C or F key on the thermometer cartridge for temperature readings in Celsius or Farenheit, respectively. The display will show the temperature in the selected scale. Releasing the C or F key will return the display to the normal CT40 functions. **Note:** when the thermometer is used, the other functions of the CT40 will be interrupted. Therefore, it is not recommended the thermometer be used while timing.

Exposure Meter

The exposure meter also consists of a cartridge and a probe. Connect the cartridge to the Expansion Interface as described earlier. Press the [START] key on the Expansion Interface and the exposure meter is ready for use. Set the meter's probe onto the enlarging easel or baseboard. Please consult the instruction sheet supplied with the exposure meter for proper use of the probe. The exposure meter will measure the relative levels of light. The CT40's display will show this relative reading of the light level. The brighter the light, the higher the reading. To use this exposure meter to automatically recalculate printing time, follow the procedure listed below:

1) Make a perfectly exposed print and note all of the parameters contributing to the perfect print, such as: lens aperture, exposure

time, magnification, developer/paper combination, etc.

2) Under the conditions noted in #1 above, set the probe on the easel, press [FOCUS] on the CT40 (to be in the [FOCUS] mode) and press the [READ] button on the meter. The display will show a relative light level. Record this level. Now press [SET TIME] on the exposure meter cartridge (set Standard Time). The display will blank. Enter the correct exposure time used in making your perfect print (must be entered in minutes:seconds.tenths timing range) on the CT40 keyboard then press [PROGRAM]. Then press [SET LL] on the exposure meter cartridge (set Standard Light Level). The display will again blank and you can enter the relative light level measurement, recorded earlier, into the CT40 keyboard. Then press [PROGRAM]. This programs the exposure meter with the necessary information for the perfect print.

3) Change any of the variables which effect the original light level of the perfect print (such as: magnification, lens aperture or filtration) or insert a new negative. Set the probe at an appropriate location on the easel and press [CALC TIME] on the exposure meter cartridge. The CT40 will automatically be reprogrammed for the new exposure time which will be displayed. **Note:** insure the timing range is set for minutes: seconds. tenths of seconds since this is how the time will be reprogrammed. This step can be repeated for as many changes to light level as needed as long as the paper and chemicals do not change.

4) Mark the paper box with the Standard Time and Standard Light Level of the perfect print. When you wish to use this particular paper and chemical combination at another time, you can press [SET LL] and set the Standard Light Level and then press [SET TIME] and set the Standard Time. You need only insert an unknown negative, focus and using the probe on the easel to read the light level while the CT40 is in [FOCUS] press [CALC TIME]. The new proper time will be calculated and automatically entered into the CT40 without referring back to the standard test negative.

pH Meter

The pH meter consists of a cartridge and probe. Connect

the cartridge to the Expansion Interface. Press START and the pH meter is ready for use. Insert the pH probe into the solution to be measured. Observe the detailed operating instructions packed with the pH meter accessory. When the pH button is pressed on the cartridge, the display on the CT40 will show the pH of the solution. When the pH button is released, the CT40's display will return to its normal function. The pH meter should not be used when the CT40 is timing since this accessory when operated interrupts the timing function of the CT40.

CHAPTER 8

Footswitch Control
(Optional Accessory)

The dual footswitch (Catalog No. 461-058) controls both the START/HOLD and FOCUS functions. To use this footswitch control, connect the plug from the footswitch to the FOOTSWITCH accessory jack on the rear of the CT40. Note that the plug has four pins that are *not* evenly spaced and therefore fits into the jack only one way. If the plug does not go into the jack easily, do not force it. Inspect the plug and jack for a proper fit and try again.

CHAPTER 9

Care of the CT40 and Accessories

The CT40 and its accessories should require only normal care to offer you years of trouble-free service. Certain precautions should be taken to assure proper safety when using the CT40 or any electrical device.

- Be sure to connect the CT40 only to a suitable power source. In the United States, this means the CT40 should only be connected to a three prong AC receptacle or a two prong AC receptacle when used with a UL listed three prong to two prong adapter with the ground clip on the adapter connected to a wall plate mounting screw.

- Under normal operating conditions (with an enlarger and safelight hookup), the CT40 may require a maximum of 600 Watts or 5 Amperes.

- Observe the maximum wattage ratings on the ENLARGER and SAFELIGHT outlets.

- Do not use the CT40 in or near water. The CT40 is designed for indoor use only.

- The rear of the CT40 has a small group of slots located to the right of the identification label. These slots are provided for ventilation. Do not block these slots.

The keyboard of the CT40 has been designed to resist liquid and dust contamination. The keyboard elements are sealed under a polycarbonate top sheet which is not normally affected by photo chemicals. Should this top sheet become dirty or stained, use a damp cloth (damp, not wet) to wipe the top. A few drops of liquid detergent may help. The lens area over the display can be cleaned using a good photographic lens cleaner.

Metal contacts, such as the connector tabs of the Expansion Interface, Pre-programmed Memory Cartridges and accessory cartridges, can be contaminated by chemicals and finger oils. Therefore, avoid touching these contact surfaces. Should these connectors become tarnished, you should disconnect them from the CT40 and clean them with a soft pencil eraser or a cotton swab dampened with clean alcohol. This will normally return the contacts to proper operating condition.

The keyboard utilizes the most modern key switch technology available. The flexible membrane switches only need a moderate touch with the finger tip. Avoid using sharp, pointed implements such as pencil and pen points. The lens area is treated with a protective coating to resist scratches. However, avoid touching the lens with sharp or abrasive objects.

The CT40 was designed for years of trouble free service and contains no user serviceable parts. There is no reason for you to ever open the CT40 case. Opening the CT40 case should only be done by Omega service personnel. Opening the CT40 by

unauthorized personnel voids all warranties and relieves Omega of all product liability.

The CT40 utilizes a modern power supply design. However, strong electrical fields can disturb the operation or accuracy of the CT40. Care should be taken to avoid the use of the CT40 near large electrical motors, light dimmers, variable speed motors, welding equipment, high power transmitters, or X-ray equipment.

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Specifications subject to change without notice.

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